Jan. 26, 1960 R. J. HAUGLAND ET AL 2,922,660

HYDRAULIC CONTROL FOR DRAWBAR AND HITCHES

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Fig. 1

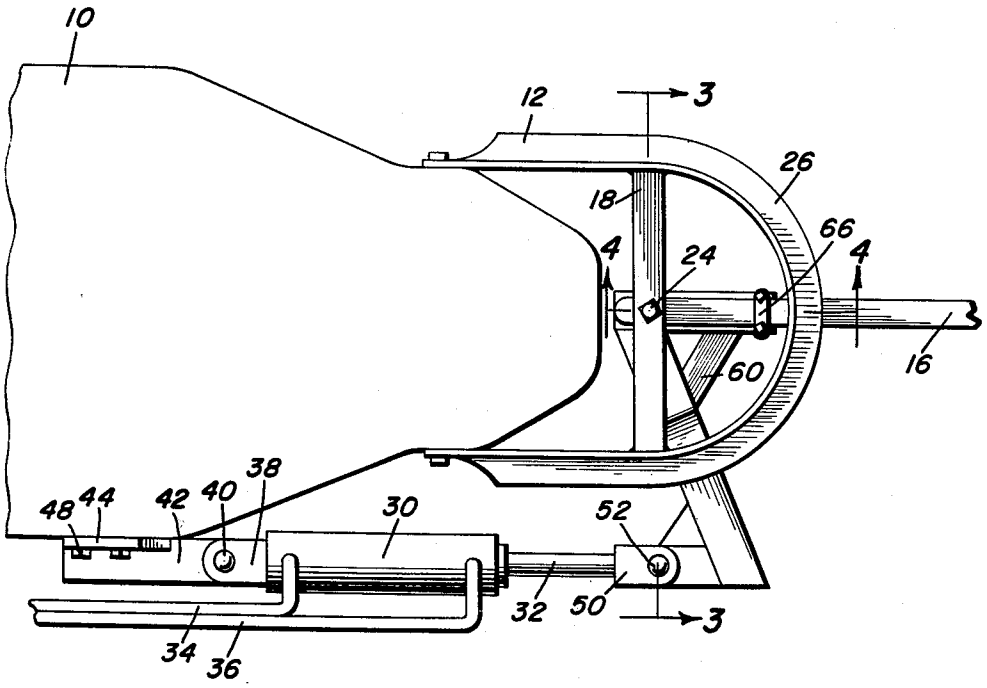
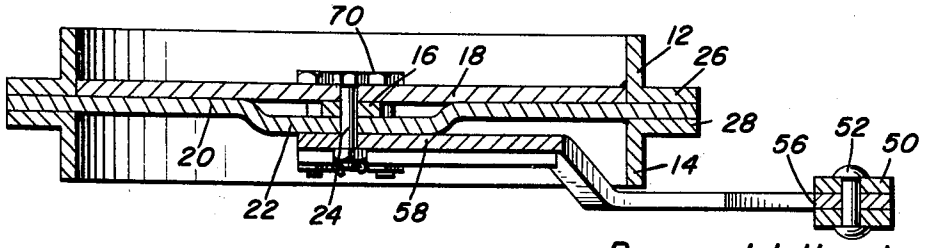


Fig. 3



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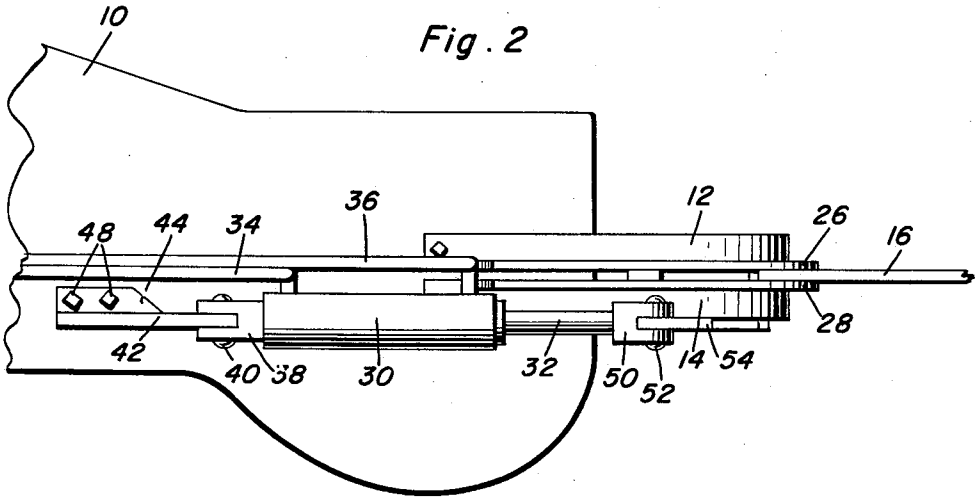
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Fig. 2



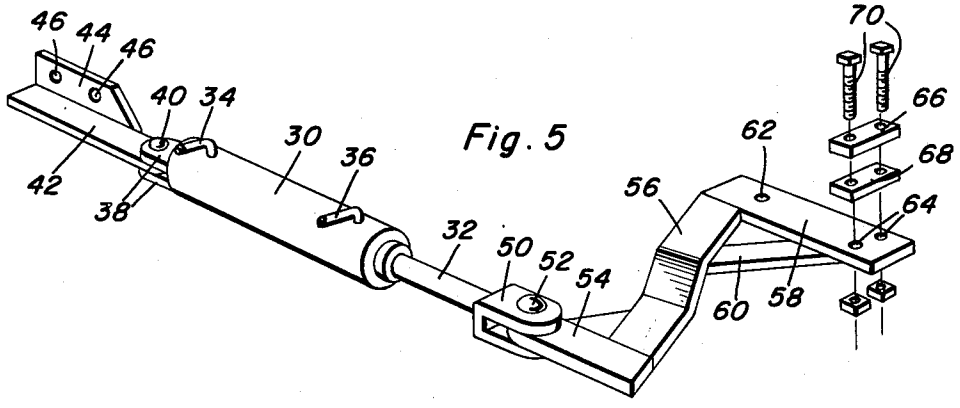
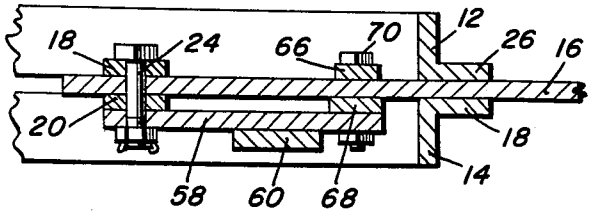


Fig. 5

Fig. 4



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HYDRAULIC CONTROL FOR DRAWBAR AND HITCHES

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Application September 7, 1956, Serial No. 608,452

3 Claims. (Cl. 280—468)

This invention comprises a novel and useful hydraulic control for drawbar and hitches and more particularly relates to an attachment applicable to conventional tractors and the drawbar of apparatuses connected thereto to provide a hydraulically operated power means for causing horizontal pivotal swinging movement of the drawbar relative to the tractor in either direction.

The primary purpose and object of this invention is to provide an attachment applicable to conventional tractors and the drawbars and implements operatively connected thereto whereby the operator of the tractor is enabled to shift and hold the drawbar in an extreme left or extreme right pivoted position relative to the tractor, without stopping the latter, and while the tractor is pulling its maximum load.

A further object of the invention is to provide a device in accordance with the foregoing object wherein the pivoting of the drawbar relative to the tractor may be effected by a power operated or hydraulic means.

Yet another object of the invention is to provide a device in conformity with the above mentioned objects which may be readily applied to conventional tractors and drawbar constructions.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top plan view showing a portion of a tractor and of a drawbar construction associated therewith, and to which the hydraulic attachment of this invention has been operatively applied;

Figure 2 is a side elevational view of the arrangement of Figure 1;

Figure 3 is a detail view taken upon an enlarged scale in vertical transverse section substantially upon the plane indicated by the section line 3—3 of Figure 1;

Figure 4 is a further detail view taken upon an enlarged scale substantially upon the plane indicated by the section line 4—4 of Figure 1; and,

Figure 5 is a perspective view of the power operated attachment in accordance with this invention.

In the accompanying drawings the numeral **10** designates generally the rear portion of any conventional form of tractor, the same being provided with a rearwardly extending U-shaped bracket having upper and lower portions **12** and **14** and constituting the drawbar coupling of the tractor to which the front end of the drawbar **16** carried by an implement, vehicle or other device which is to be coupled to the tractor, is operatively associated. As will be best apparent from Figure 3, the drawbar bracket is provided with a transversely disposed brace member **18** which is welded at its ends to the two legs of the upper drawbar section **12**, while a lower brace member **20** having a central depressed portion **22** is positioned between the upper and lower drawbar coupling assembly sections **12** and **14**, and is welded to the latter.

By means of a king bolt **24** the drawbar is pivotally connected to the upper and lower transverse brace members **18** and **20** for horizontal swinging movement, the drawbar thus extending between upper and lower horizontally extending flanges **26** and **28** of the sections **12** and **14** for guided horizontal swinging movement therebetween.

The power operated attachment of this invention provides a power means whereby the drawbar **16** may be pivoted horizontally about its king bolt **24** to either its right end or left end position, as desired. For this purpose, the attachment consists of a hydraulic cylinder and piston ring indicated generally by the numeral **30** having a piston rod **32**, and provided with fluid pressure conduits **34** and **36** whereby the piston rod may be moved in either direction selectively. The cylinder unit at one end is provided with ears or bifurcated lugs **38** which are pivotally connected as by a pivot pin **40** to one end of a bracket **42**. The latter has a perpendicular flange **44** apertured as at **46** whereby the same may be secured as by the fastening bolts **48** to any convenient portion of the tractor **10**.

The piston rod **32** at its end is provided with a bifurcated extremity **50** which by means of a pivot pin **52** is secured to one extremity **54** of a lever arm **56** having at its other end a terminal portion **58** which extends in the opposite direction to and is generally parallel to the end **54**. A suitable brace **60** is welded or otherwise secured to the members **56** and **58** to provide a rigid bracing for the same.

The member **50** is provided with an aperture **62** adjacent its junction with the lever member **56**, and with a further pair of apertures **64**. A pair of apertured plates **66** and **68** together with bolts **70** cooperate with the apertures **64**.

In applying the attachment to the drawbar construction of a tractor and trailer element, the drawbar **16** is disposed as shown in Figure 3 between the transverse brace members **18** and **20**, above the recessed portion **22** of the latter. The king pin **24** extends through the drawbar, through aligned apertures in the braces **18** and **22**, and through the aperture **62** of the lever terminal portion **58**. The lever portion **56** then extends laterally from the drawbar coupling assembly, projecting beneath the drawbar section **14**, as shown in Figures 2, 3 and 4. The lever terminal portion **58** is disposed beneath the drawbar **16** and the lower cross brace portion **20**, with the spacer plate **68** being disposed between the same and the lower surface of the drawbar, while the plate **66** rests upon the top of the drawbar, with the fastening bolt **70** being secured therebetween to rigidly clamp the member **58** to the drawbar **16**.

It will now be apparent that the lever **56** is detachably but rigidly secured to the drawbar **16** by means of the fastening bolt **70**, and the king pin **24**, whereby the drawbar **16** may be caused to swing horizontally about the king pin. Upon actuation of the hydraulic cylinder and piston unit **30**, by a means of any conventional type, not shown, it is evident that a predetermined horizontal swinging movement of the drawbar may be secured in either direction about the king pin **24**, thereby enabling the operator of the tractor to position the drawbar and the implement carried thereby at any desired angular relation with respect to the direction of travel of the tractor. This greatly facilitates the operation of the tractor as, for example, in making sharp turns in operating in very soft ground, upon a hillside and the like.

It will be understood that the bracket member **42** with its apertures **46** may be so constructed as to adapt the same to fit upon various conventional types of tractors, upon various portions of the frame thereof; while the

lever 56 with its terminal portion 58 will also be constructed in such a manner as to adapt the same to fit different constructions of drawbars.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A power operated drawbar and hitch assembly comprising a pair of vertically spaced and horizontally extending, U-shaped complementary upper and lower brackets, means for securing said brackets in rearwardly projecting position upon the rear portion of a tractor, a pair of vertically spaced complementary upper and lower brace members each secured to and extending between the legs of one of said U-shaped brackets, a drawbar disposed between the pair of brackets and between the pair of brace members and movably supported thereby, a vertical pivot pin extending through said brace members and said drawbar and connecting the latter to the former for horizontal swinging movement between said brackets, a lever secured to said drawbar at the underside thereof and extending laterally therefrom and beneath said lower bracket to the exterior of the latter, a fluid pressure operated cylinder and piston unit disposed along the exterior of said brackets, means connecting said unit to the lever exteriorly of said bracket and fastening means for mounting said unit upon said tractor.

2. The combination of claim 1, wherein said lever is pivoted upon said vertical pivot pin and means rigidly securing said lever to said drawbar.

3. A power operated drawbar and hitch assembly comprising a pair of vertically spaced and horizontally extending, U-shaped complementary upper and lower brackets, means for securing said brackets in rearwardly projecting position upon the rear portion of a tractor, a pair of vertically spaced complementary upper and lower brace members each secured to and extending between the legs of one of said U-shaped brackets, a drawbar disposed between the pair of brackets and between the pair of brace members and movably supported thereby, a vertical pivot pin extending through said brace members and said drawbar and connecting the latter to the former for horizontal swinging movement between said brackets, a lever secured to said drawbar at the underside thereof and extending laterally therefrom and beneath said lower bracket to the exterior of the latter, a fluid pressure operated cylinder and piston unit disposed along the exterior of said brackets, means connecting said unit to the lever exteriorly of said bracket and fastening means for mounting said unit upon said tractor, said lever being pivoted upon said vertical pivot pin and being disposed beneath and abutting against the lower brace member in side-by-side relation, a clamp rigidly securing said lever to said drawbar, said clamp being located within the confines of said U-shaped brackets.

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